



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/056,906	01/24/2002	Wayne G. Renken	M-12467	2359

36257 7590 01/12/2004

PARSONS HSUE & DE RUNTZ LLP
655 MONTGOMERY STREET
SUITE 1800
SAN FRANCISCO, CA 94111

EXAMINER

GARBER, CHARLES D

ART UNIT PAPER NUMBER

2856

DATE MAILED: 01/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/056,906

Applicant(s)

RENKEN, WAYNE G.

Examiner

Charles Garber

Art Unit

2856

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 October 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-54 is/are pending in the application.
- 4a) Of the above claim(s) 21-43 and 45 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 2-23 and 44 is/are allowed.
- 6) ☒ Claim(s) 46,47,51,52 and 54 is/are rejected.
- 7) ☒ Claim(s) 48-50 and 53 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 12,17.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 54 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 54 recites the limitation "the electronics module" in the second line of the claim. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 46, 47, 51, 52 and 54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smesny et al. (US Patent 5,444,637) in view of Baker et al. (reference 010 from Applicant's Information Disclosure Statement filed 11/14/2003 titled "A Novel *In Situ* Monitoring Technique for Reactive Ion Etching Using a Surface Micromachined Sensor" from IEEE Transaction on Semiconductor Manufacturing, Vol. 11, No. 2 dated May 1998, pp. 254-264)

Regarding claims 46 and 47, Smesny discloses a semiconductor wafer for sensing, recording and retrieving fabrication process conditions to which the wafer is exposed which is equivalent to a system for sensing processing conditions as in the instant invention. Smesny includes a wafer 10 which is a substrate. The wafer or substrate includes a plurality sensors 12 to measure the processing conditions of the substrate at different areas of the substrate as shown in figure 1 (see figure 1 and also read column 4 lines 11-14).

However Smesny lacks an electronics platform electrically coupled to the of sensors where the electronics platform including at least one integrated circuit is mounted to the substrate by one or more legs that elevate the platform from the substrate to form a gap.

Baker discloses an *in situ* monitoring technique using micromachined sensors on the surface of a substrate. Baker teaches driver/sensor electrodes shown in figure 4(b) attached to the surface of the substrate as well as a platform shown in figure 4(e) which is supported by integrally formed legs. The platform forms part of an integrated circuit illustrated in figure 3 of the reference which is coupled to the sensor. Changes in the

resonant frequency of the platform caused by substrate processing will be reflected by changes in the measured capacitance of the circuit.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to couple a platform including electronic circuit supported by legs with a sensor electrode on a substrate in order to form a resonant circuit which measures the effect of substrate processing. The particular arrangement will "offer high resolution" and "accurate in situ monitoring of etch rate and uniformity at a nominal cost."

As for claim 51, Baker teaches the platform and legs are electrical conductors integrally formed. It would have been obvious to one having ordinary skill in the art at the time the invention was made to form electrical conductors integral with the platform legs so the device may be formed in fewer manufacturing steps.

As for claim 52, in figure 5 Baker shows the electronics platform is mounted to the center of a surface of the substrate. It would have been obvious to one having ordinary skill in the art at the time the invention was made to mount the platform to the center of a surface of the substrate in order to determine the processing conditions at that point.

As for claim 54, Smesny discloses two power supplies 16 shown in figure 1 which may be considered an electronics module and an additional electronics module being, shown to be approximately equidistant from the center of the substrate along a diameter of the substrate.

Allowable Subject Matter

Claims 2-20 and 44 are allowed.

Please see Examiner's earlier Office Action for reasons for allowance.

Claims 48-50 and 53 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claims 48 and 49, the references do not disclose or suggest the gap is from 1 mm to 5mm or the one or more legs are between 1 mm and 5mm in height and between 0.05mm and 1.0-mm in width. The Baker reference in fact teaches a much smaller gap and a larger gap would probably render the invention ineffective.

As for claim 50 the references do not disclose or suggest further comprising an electrical cable between the electronics platform and the substrate. A cable or a bound or sheathed group of mutually insulated conductors in addition to the deposited layer of gold taught by Baker would be redundant and pointless

As for claim 53, the Baker reference in fact teaches away from the one or more legs insulating the platform from high temperatures at the substrate.

Conclusion

Applicant's submission of an information disclosure statement under 37 CFR 1.97(c) with the fee set forth in 37 CFR 1.17(p) on 11/14/2003 prompted the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 609(B)(2)(i). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles Garber whose telephone number is (703) 308-6062. The examiner can normally be reached on 6:30 a.m. to 3:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on (703) 305-4705. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4900.

cdg


HEZRON WILLIAMS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800